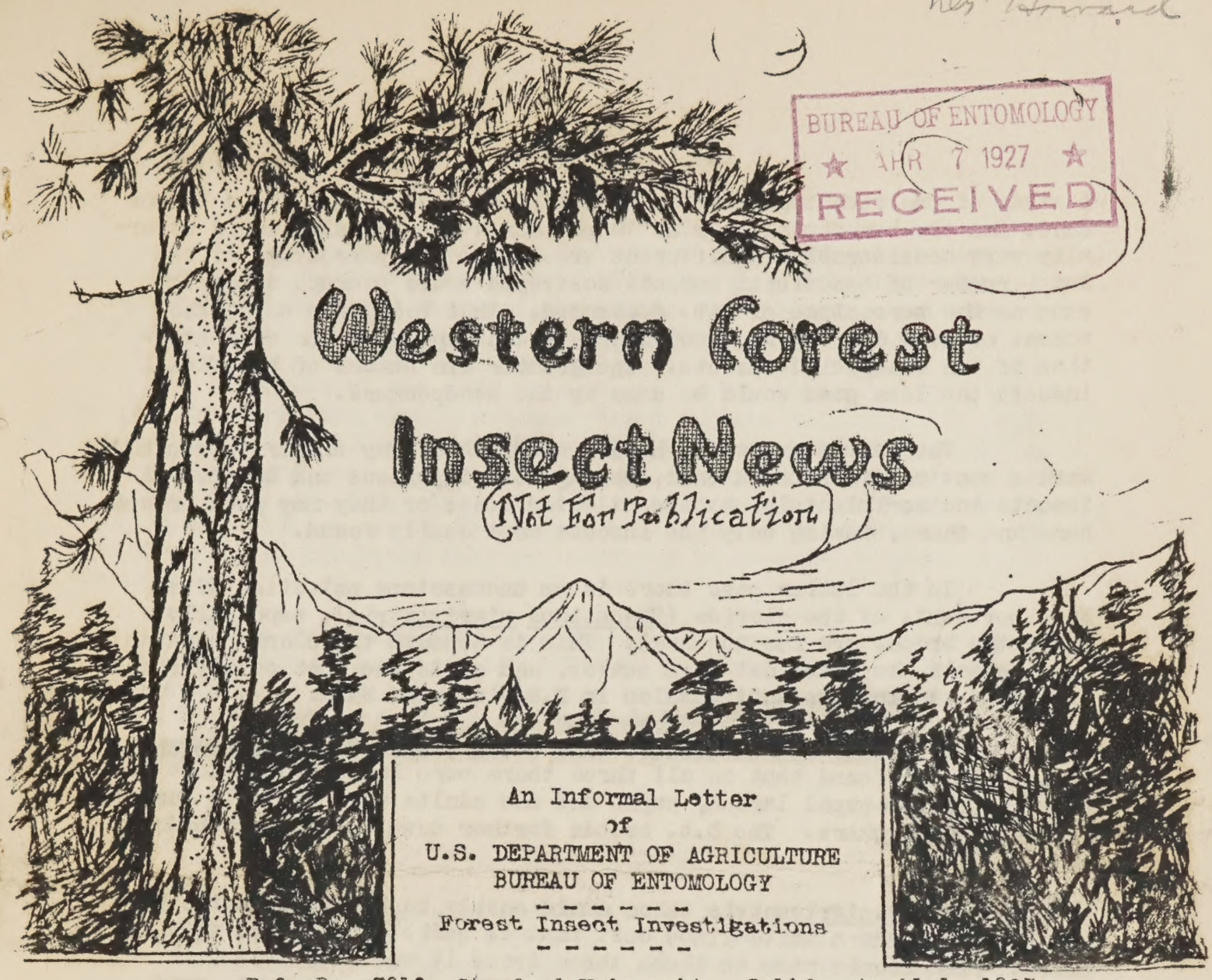

Western Forest Insect News

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Forest Insect Investigations
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THE EFFECT OF WOODPECKERS ON ONE D.BREVICOMIS INFESTATION

by
H.L. Person

It is usually taken for granted that since woodpeckers are often found feeding on D.brevicomis-infested trees, they must be entirely beneficial. There is no doubt that they destroy a great many D.b. and are often a considerable factor in control; but unfortunately woodpeckers show as little discrimination of the real enemy in their natural control work as we do in our artificial control work, and under certain conditions they evidently do more harm than good.

In connection with the Cascade1 studies of 1926, observations were made on three species of woodpeckers common to that area--the Harris, the white-headed, and the northern pileated.

Of these the northern pileated is probably the most beneficial where abundant enough to be a factor. When feeding on D.b. trees it chisels off all the outer half to three-quarters of the bark over large areas. Many D.b.-infested trees have been found from which 50 to 75 per cent. of the outer half of the bark has been completely removed.

A study of one such tree showed that the D.b. brood was reduced 84 per cent. and the beneficial clerids 70 per cent. The results would naturally vary considerably in different trees, and the percentage of the total number of beneficial insects destroyed would average about the same as the percentage of D.b. destroyed. That being the case, the amount of good done by the woodpeckers would depend on the concentration of the beneficial insects. The greater the number of beneficial insects the less good would be done by the woodpeckers.

The Harris and white-headed woodpeckers may either thoroughly work a section of infested bark, taking both injurious and beneficial insects indiscriminately, as the pileated does; or they may peck around here and there, taking only the insects most easily found.

In the latter case there is an unconscious selection of a high per cent. of the clerids (Thanasimus nigriventris), especially where the broods are far advanced. This is because the clerid pupates just beneath the outermost bark scales, and so is the most easily found of any of the insects that develop in D.b.-infested bark.

This fact became evident when brood counts were made on three trees. It was found that on all three there were large areas where T. nigriventris prepupal larvae, pupae and new adults were the only insects taken by woodpeckers. The D.b. broods farther down in the bark had not been disturbed.

The T.nigriventris taken could easily be counted, as the prepupal larvae make a white-lined cell that is quite conspicuous when exposed. From counts made on these three trees it was estimated that of a total of 12,000 clerids that developed, 1200 or ten per cent. were taken by woodpeckers. In this case the birds undoubtedly did more harm than good.

It would not be fair to condemn woodpeckers on the basis of such meager evidence, and this is not the writer's purpose. Under many conditions, as when the number of beneficial insects is small, the woodpeckers working on D.b. trees would destroy principally D.b. and so do a great amount of good; but it should be recognized that at times their effect on a D.brevicomis infestation is the opposite of what may be desired and expected.

PETE CREEK PROJECT TO BE REWORKED

During the 1927 season one thousand dollars will be spent in reworking the Pete Creek Project, Kootenai National Forest, District One. During the 1926 season control measures were instituted within this area for the purpose of checking a local outbreak of the mountain pine beetle in white pine. As a result of the first season's work a reduction of 62 per cent. over the previous year's loss was secured. It is hoped that by treating the reinfestation which occurred last season the outbreak will be checked.

--J.C.E.

MILLION-DOLLAR BUG LOSS IN ONE YEAR

For the first time since surveys were started on the Southern Oregon-Northern California Project in 1921, the loss of yellow pine stumpage from barkbeetle depredations during one year has exceeded one million dollars.

Estimates of the 1925 loss, based on the survey of 1926, show that the western pine beetle and associated insects killed on the project area of 1,267,000 acres 274,000 yellow pines containing a volume of 252,880,000 board feet, which valued at $4.60 per M board feet amounted to a loss of $1,161,510. The infested trees averaged 922 board feet per tree, and an average of 138 trees were killed to every square mile. The loss amounted to 200 board feet per acre, or an average of 2% of the timber stand.

It is fully expected that the loss occurring in 1926 will exceed that of 1925 by at least 25%. How much of this loss could have been prevented if control work had been continued is problematical; but the small amount of work which was done showed that much of this loss was preventable.

--F.P.K.

A NEW LEAD CABLE BORER

For the first time a barkbeetle of the family Scolytidae is reported as injurious to lead telephone cable. Mr. H.G. Shaw of the Pacific Telephone and Telegraph Company collected the beetle Micrasis hirtellus Lec. in a cable near San Jose, Calif. The hole made is about half the size of that made by the common California lead cable beetle, Scobicia declivis (Lec.), a beetle belonging to the powder post beetle family Bostrichidae.

The normal habit of Micrasis hirtellus is to bore into the dead branches of willow, alder, California bay, wild lilac and probably madrone, where the broods are reared. It is more of a wood than bark borer, and in that way resembles the Bostrichidae more than it does the typical barkbeetle.

Why it should attack the cable is a difficult problem. Apparently it enters at an open spot and not where the cable comes into contact with the suspension ring, as the California lead cable beetle usually does. Possibly it is a moron and cannot tell the cable from a willow or alder branch!

--H.E.B.

LOW TEMPERATURES FATAL TO WESTERN PINE BEETLE

In the attack upon the western pine beetle the emphasis has recently shifted from life history and control method studies to the environmental factors that affect the beetle. As with all other forms of life, temperature is perhaps the most important influence governing the activity of this insect. Brood development may start at any time when the temperature rises above a certain minimum point, and the number of generations within a season is largely determined by this factor.

That the temperatures produced within the bark by solar heat are fatal to western pine beetle broods was discovered some years ago, and the tests carried out in 1920 show that the broods do not survive at 114° Fahr. It is also evident that low temperatures are equally fatal. The high mortality found by Jacnicke among the overwintering broods on the Metolius area in 1925 strengthened this assumption and emphasized the point that if winterkilling does occur it is an important factor to be considered.

The actual testing out of the effect of low temperatures could not be worked out in the field, due to the entire lack of control of the most important factor--air temperature. During the past winter, however, it has been possible to carry out a series of tests at the Palo Alto Laboratory by means of special equipment. A freezing apparatus, made to order for the purpose by the Frigidaire Company, provided compartments large enough to hold fairly sizable sections of infested bark. A temperature of as low as 24° below zero Fahr. can be maintained.

From the tests made to date it appears that no stage of the western pine beetle will survive a bark temperature of -15 Fahr. Mortality sets in between 0 and -10, and a very high percentage of the brood is killed by a brief exposure at the latter point. Field checks carried on by Evenden during December, 1926, indicate that the bark on standing infested trees retains a certain amount of its heat, and that the air temperature must fall somewhat below the critical point before fatal temperatures can be expected in the bark.

One interesting development suggested by this study is that the temperature at which mortality occurs differs according to the species of barkbeetles, predators and secondary insects. Parasites were not killed at all at the lowest temperatures produced by this apparatus.

After the study has been completed for the western pine beetle it will probably be worth trying for other forest insects. It seems important that we know something of the extent to which low winter temperatures may act as a natural controlling factor of barkbeetle epidemics.

-- J.M. Miller

RE-REVIEWS

Although in the March 1 issue of this publication he stings me with a rebuke, ridicules my use of entomological nomenclature and unintentionally, let us hope, but none the less effectually, malquotes me by using without any qualification only two words of the many and chiefly laudatory things I said about Professor Essig's manual, I still feel indebted to Mr. Keen for a couple of bits of information which may be of use to me in the future. Further still, I am indebted to him for bringing out more plainly and forcefully than I could possibly have done an important weakness that seems to afflict too many otherwise scientific entomologists.

I would remind Mr. Keen that the scientific names of insects, quite well-known to me in the field and which I failed to find in Professor Essig's manual, were not names of my own coining, nor were they names used a great number of years since. They were handed to me by authorities, some of them of the Bureau of Entomology, to whom I sent material for identification. Strangely enough, I knew no names under which to seek other than the ones they gave me. If those names are not to be found in the indices of the manual then, from a layman's standpoint, the text is open to criticism on that particular score. Is it in a spirit of true scientific endeavor to make the intricate as practically useful as possible, that each succeeding individual entomologist seems to exercise a penchant for independently attaching his own alias to each species or genus that he handles? This amusement, popular at all times with the closet naturalist, detracts much from the usefulness of taxonomy.

It is much to be regretted that modern entomologists, seemingly to a greater extent than any other group of scientific workers, still appear to indulge freely in this deplorable dissipation, greatly to the detriment of the progress and usefulness of their profession. Perhaps this unfortunate condition is unavoidable, due to the comparative youth of entomology as a science and to the thousands of species they handle. Nevertheless, one is frequently inclined to wonder how closely entomologists observe the Linnaean law of priority in nomenclature.

Mr. Keen neglected to mention that I stated very plainly that I reviewed solely from the point of view of a forester, not an entomologist. My review did not appear in an entomological publication. My sole purpose was to encourage foresters, through what I hoped was an honest nonprofessional appraisal of it, to make full use of Professor Essig's excellent book. A few foresters have thanked me for my inadequate effort. By this scathing "Review of Reviewers" I am humiliated, discredited and crushed to earth. Being of hardy "timber-beast" constitution I shall probably rise again--to remark --when I find a better insect manual for foresters' use than Professor Essig has given us, and when I find an entomologist who is without a new scientific cognomen for any and every old "bug" that he happens to dissect.

H.R.F.

APOLOGIA

My "Review of a Reviewer" in the February issue of the NEWS LETTER was a bit unfair to "H.R.F." in that I did not point out that his review of Professor Essig's book was in the main highly laudatory; for this I wish to apologize, and hope my outburst caused him no injury.

The point I wished to bring out in the review was to show how easy it is to criticize another man's work and at the same time be in error. My review of "H.R.F." also illustrates the same point, because it too had its vulnerable spots, and even from the standpoint of nomenclature would probably be scored by some entomologists.

I fully agree with "H.R.F." that the popular pastime of changing well-known scientific names is a most deplorable practice, and one rightfully calculated to arouse the ire and displeasure of the workers in economic fields; but when he states that entomologists are addicted to this obnoxious practice to a greater extent than any other group of scientific workers, I "rise to remark" that once more I fear he is a bit inaccurate. Perhaps "H.R.F." has forgotten the war recently waged in the JOURNAL OF FORESTRY over the dendrologists changing the names of many of the well-known trees; and now we hear that ornithologists are revising the names of many of the birds.

I venture to say that entomologists do less revising of names in proportion to the number of known insect species than any other group of taxonomists. (They are too busy describing new species to bother about changing the names of the old ones.) Just wait until more of the new species are described and the entomologists have time to turn their attention to the careful revision of insect groups, and you will probably see as high a percentage of revised names as now occur in other fields. I even heard the other day that our old friend Dendroctonus would shortly be no longer with us. This of course would be a calamity; and let us hope that before that evil day arrives the International Commission on Zoological Nomenclature will overrule the Linnaean law of priority and fix a few insect names by fiat.

--F.P. Keen.

HIBERNATION OF THE ALDER FLEA BEETLE

During February Ranger Larsen of the Bloomfield District of the Tahoe National Forest brought in specimens of a chrysomelid beetle which he believed was attacking white fir near the ranger station. This was later found to be a hibernating colony of the Alder Flea Beetle (Haltica bimarginata Say.). Although the beetles were massed upon two small fir trees near a stream bed they were causing no apparent injury to the trees. The alders along the stream had been partially defoliated during the season of 1926.

No one has yet answered the old question as to why ladybird beetles "fly up the creek and down the creek" and congregate in masses. The Alder Beetle congregates in a similar fashion, presumably for some reason best understood by the insect itself.

--J.M.M.

ORIGIN OF INSECTS OF PLANTED MONTEREY PINE

During the past fifty years numerous Monterey pines have been planted in the San Francisco Bay section, which is from 100 to 200 miles north of the native growth at Pacific Grove. For the first twenty-five years these trees grow rapidly and appear healthy; after that they are attacked by numerous insects, some of which are found in the native forest, while others are apparently not found there.

Various theories have been advanced as to how the insects infesting the planted areas have gained access to them. Have they been brought in lumber or wood used for fuel, have they flown in from Pacific Grove, etc.?

Practically all the trees planted have been set out on the floors of the valleys opening out from the San Francisco chain of bays. Fifteen to fifty miles away, on some of the ridges forming the series of mountain ranges that surround the bays, are small isolated areas of western yellow pine, digger, coulter and knobcone pine.

Many of the insects that attack the Monterey pine also infest one or more of these other species. What could be more logical than to suppose that the insects from these native pines can fly the intervening distance to the planted trees? Facts, however, are more convincing than theories.

The more important insects found in the planted Monterey pine are the barkbeetles--Dendroctonus valens, Ips confusus, Ips radiatae and Ips plastographus; the flathead borers--Melanophila californica, M. intrusa, Chrysobothris caurina, C. monticola, Buprestis aurulenta and B. laeviventris; the roundhead borers--Rhagium lineatum, Liasemum nitidum and Ergates spiculatus; the bark weevil, Pissodes radiatae; the scale, Toumeyella pinicola; the gall midge, Thecodiplosis piniradiatae, and the pine needle mite, Eriophyes pini.

One species of these, Melanophila californica, has been reported from yellow, digger, coulter and knobcone as well as Monterey; two, Dendroctonus valens and Ips confusus, from yellow, digger and coulter; five--Rhagium lineatum, Chrysobothris caurina, C. monticola, Buprestis aurulenta and B. laeviventris--from yellow, digger and knobcone; one, Melanophia intrusa, from yellow and knobcone; one, Liasemum nitidum, from digger and knobcone; one, Ergates spiculatus, from yellow; and five--Ips radiatae, Ips plastographus, Pissodes radiatae, Toumeyella pinicola and Eriophyes pini, from the Monterey pine only.

Twelve of the seventeen species--more than two-thirds--might have come from the surrounding hills; three--Ips radiatae, Ips plastographus and Pissodes radiatae--from the native forest at Pacific Grove; while two--the scale and thermite--have probably been introduced from foreign lands.

--H.E. Burke.

BEAVERHEAD*BITTERROOT PROJECT ORGANIZATION

Mr. Evenden attended a meeting of Forest Service officials at Missoula, Montana, on March 10 in connection with the Beaverhead-Bitterroot Control Project. Fifty thousand dollars will be spent on this project during the coming season in an attempt to check the spread of the mountain pine beetle through the lodgepole stands of the Rocky Mountains. The purpose of this meeting was to decide upon the plan of operation, arrange a system of records, etc.

Mr. C.S. Webb, Logging Engineer of District One, has been put in charge of this project, and Mr. Tom Crossley, Lumberman of the Coeur d'Alene National Forest, will be his assistant. From twelve to fifteen Junior Foresters, Forest Rangers, etc., will also be detailed to the project to act as chiefs of spotting crews, camp foremen, etc. A training camp for spotters will start about April 20, or sooner if snow conditions will permit.

--J.C.E.

WINTERKILLED TREES RECOVER

Mr. Rust has just completed an annual check of the sample plots established in relation to the winter killing of yellow pine resulting from the severe freeze of December, 1924. He finds that aside from the very small loss which occurred during the summer of 1925, due to insects attacking the smaller weakened trees, practically all the trees have recovered and are making a fair growth.

--J.C.E.

PERSONNEL

Mrs. Jessie G. Crittenden, for some years connected with the Forest Service and lately with the Bureau of Plant Industry, has been transferred to the Palo Alto Laboratory of the Bureau of Entomology as Assistant Clerk-Stenographer.